

FIG. 1

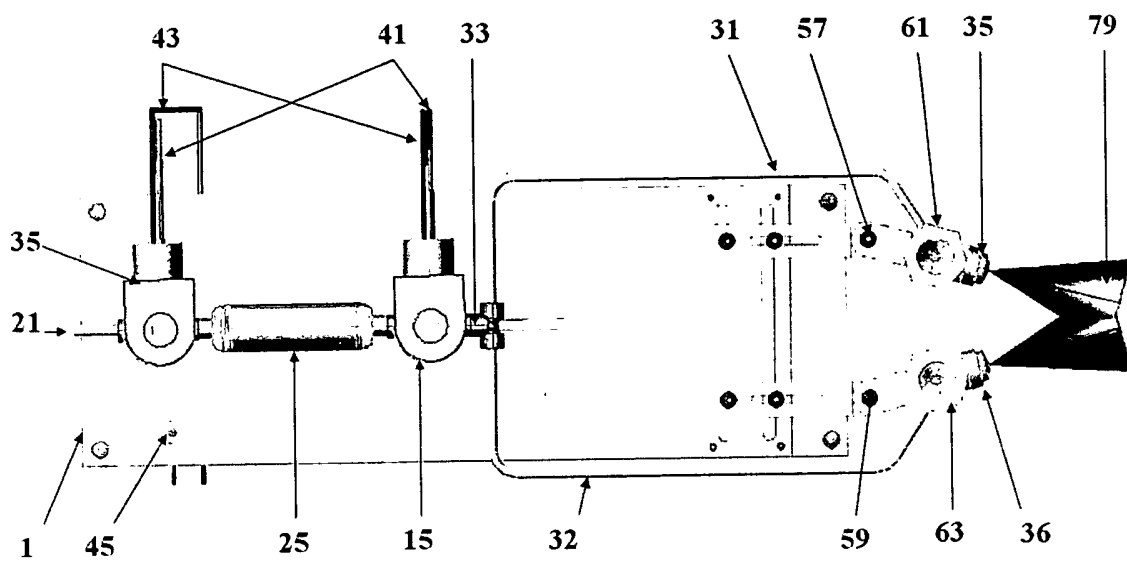


FIG. 2

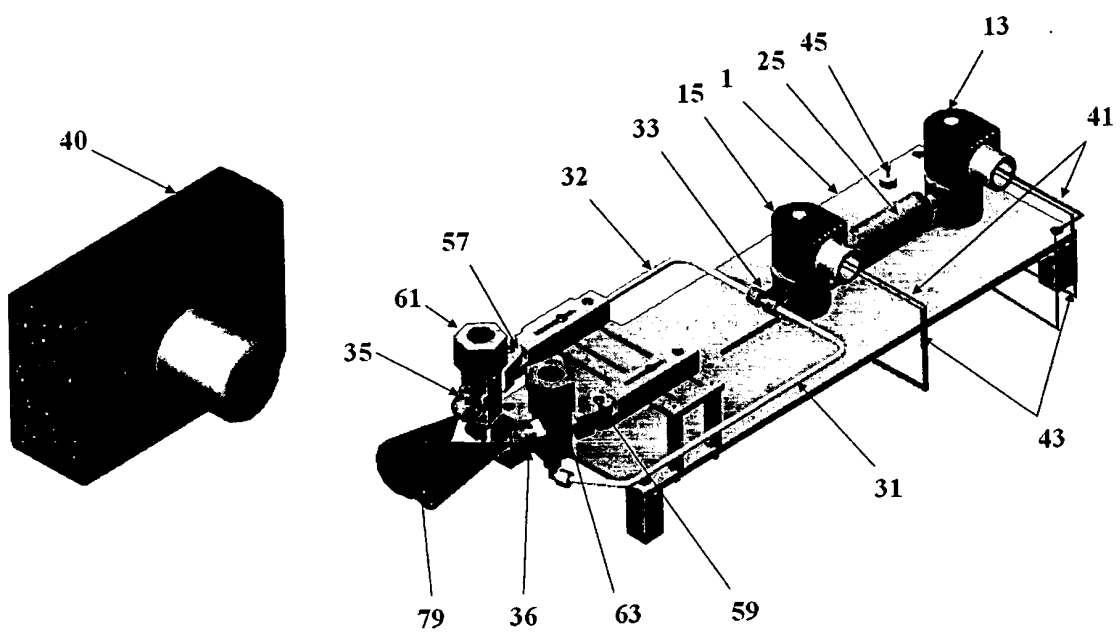


FIG. 3

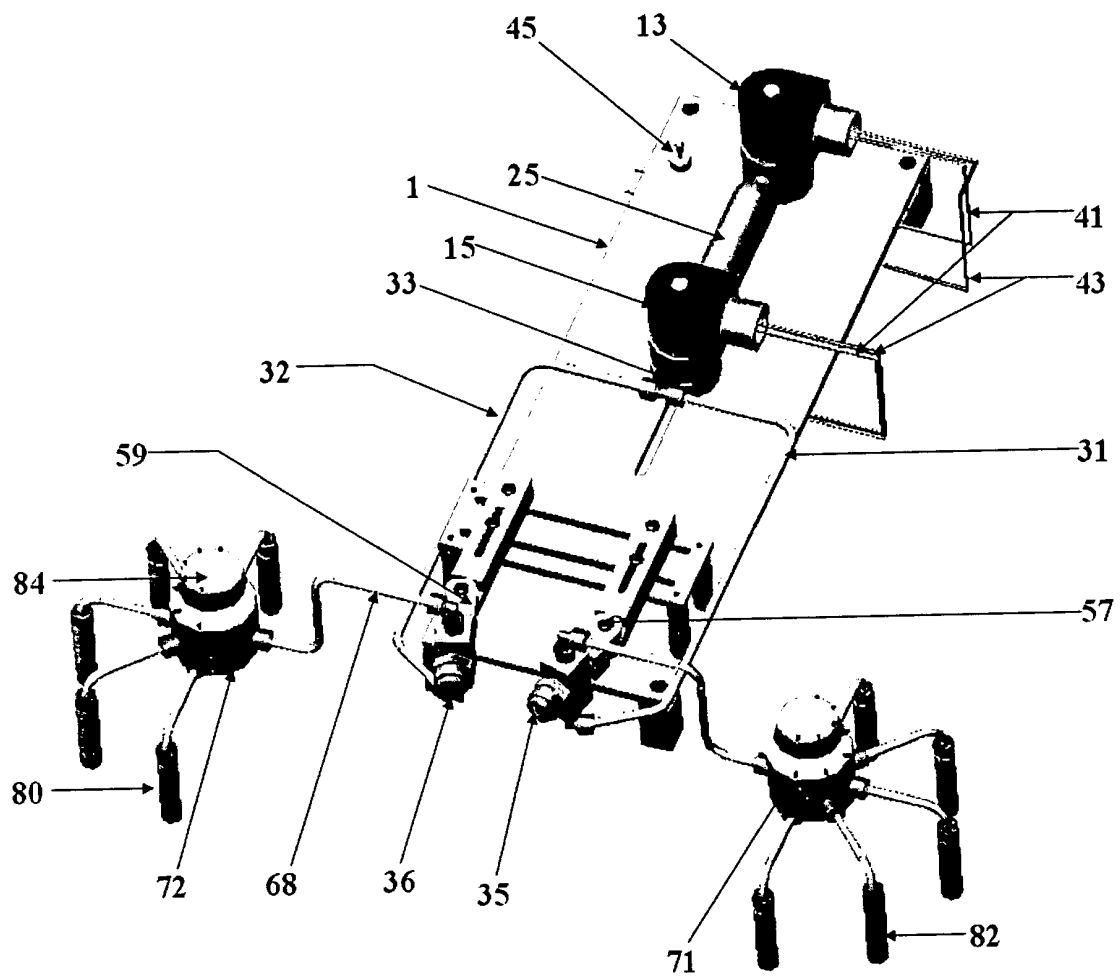


FIG. 4

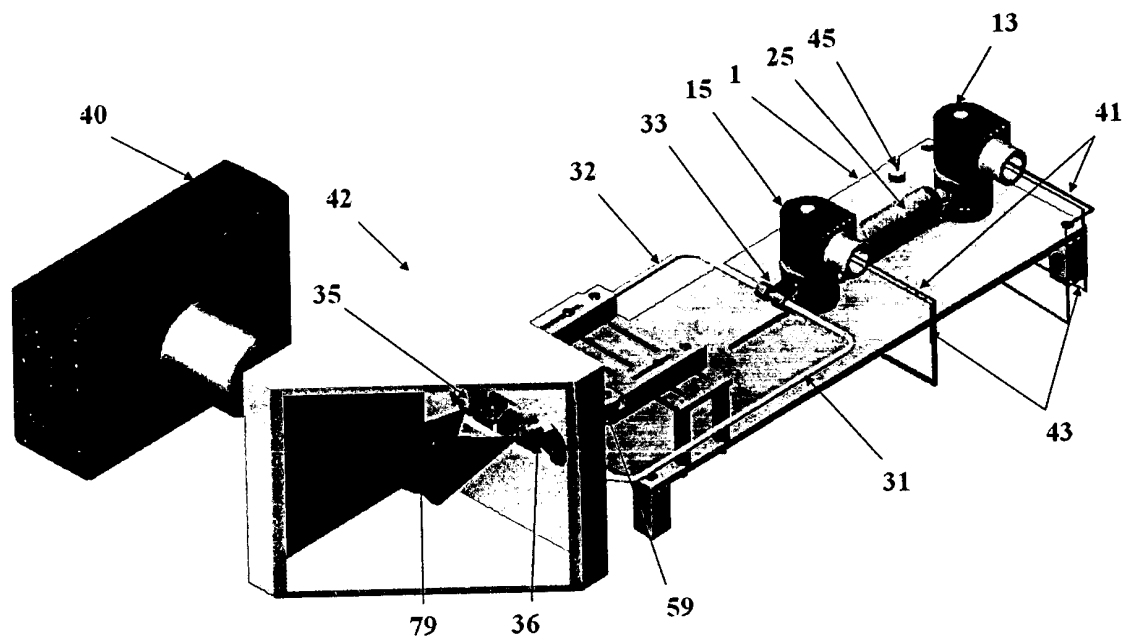


FIG. 5

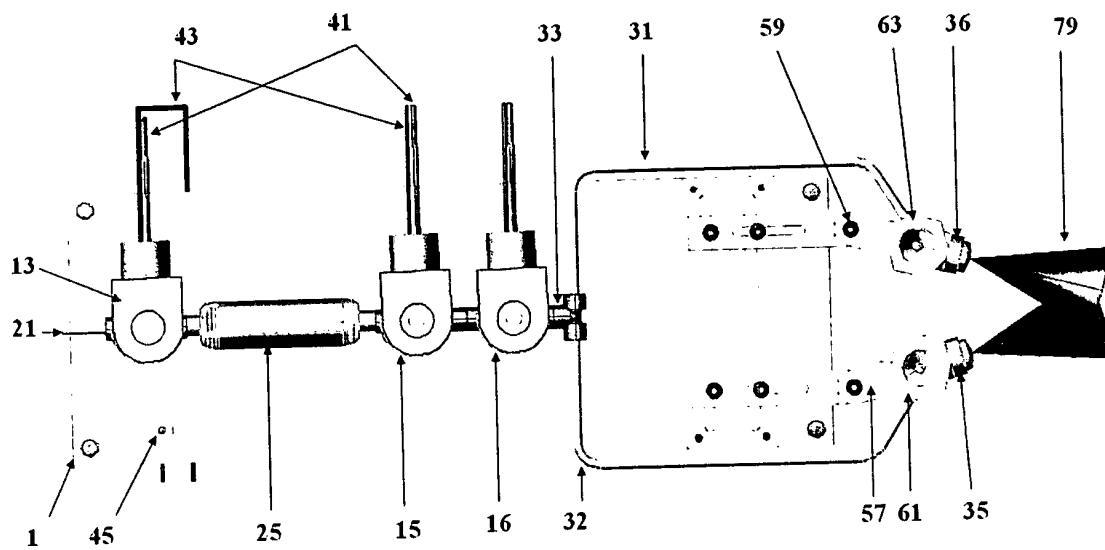


FIG. 6

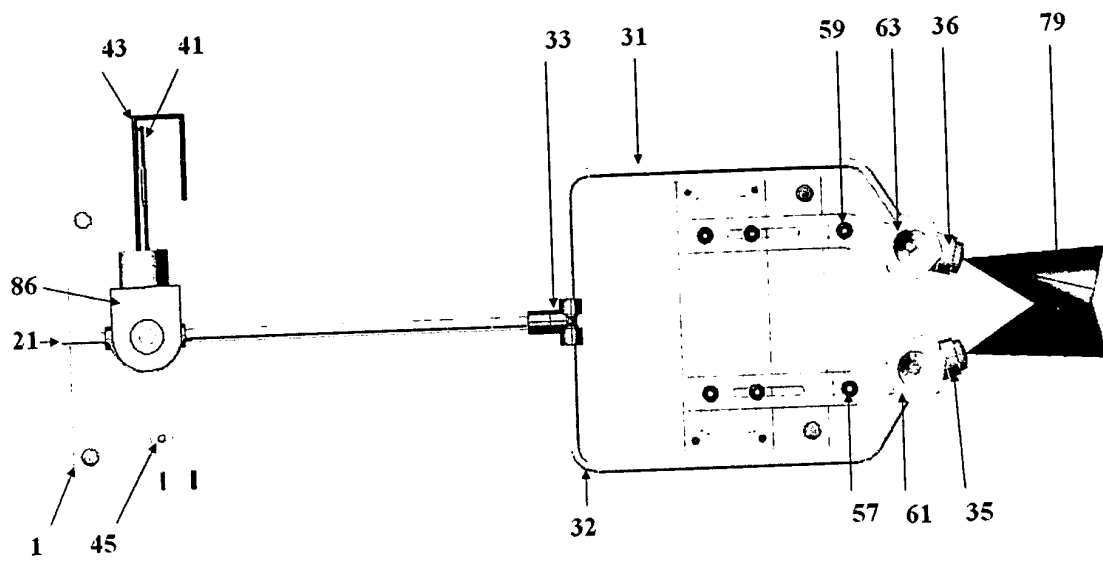
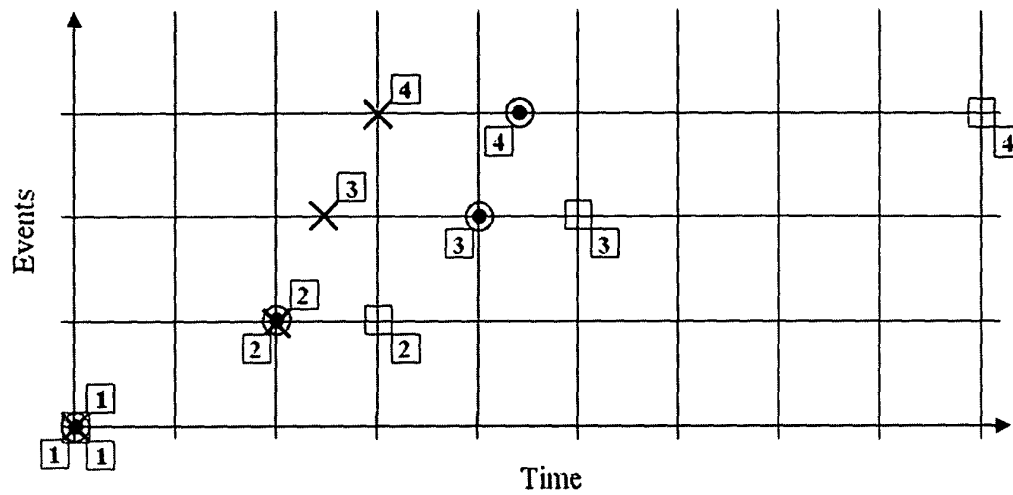


FIG. 7

## Two-Sprays, Two-Jets and Drop Test – Difference in Ignition Delay Values



Legend:

Symbol	Device
	Two-sprays
	Two-jets
	Drop Test

### Drop Test:

1. Propellant out of drop generator
2. Drop hits crucible
3. Propellants visibly reacting
4. Ignition

### Two-Sprays and Two-Jets:

1. Propellants out of nozzles
2. Propellants impinge on each other
3. Propellants visibly reacting
4. Ignition

FIG. 8



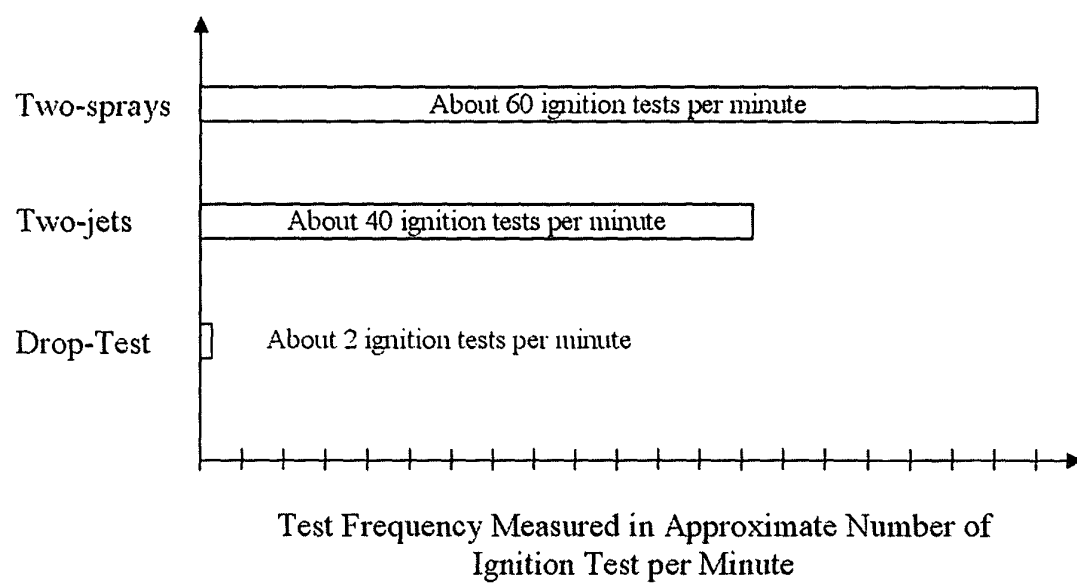


FIG. 9

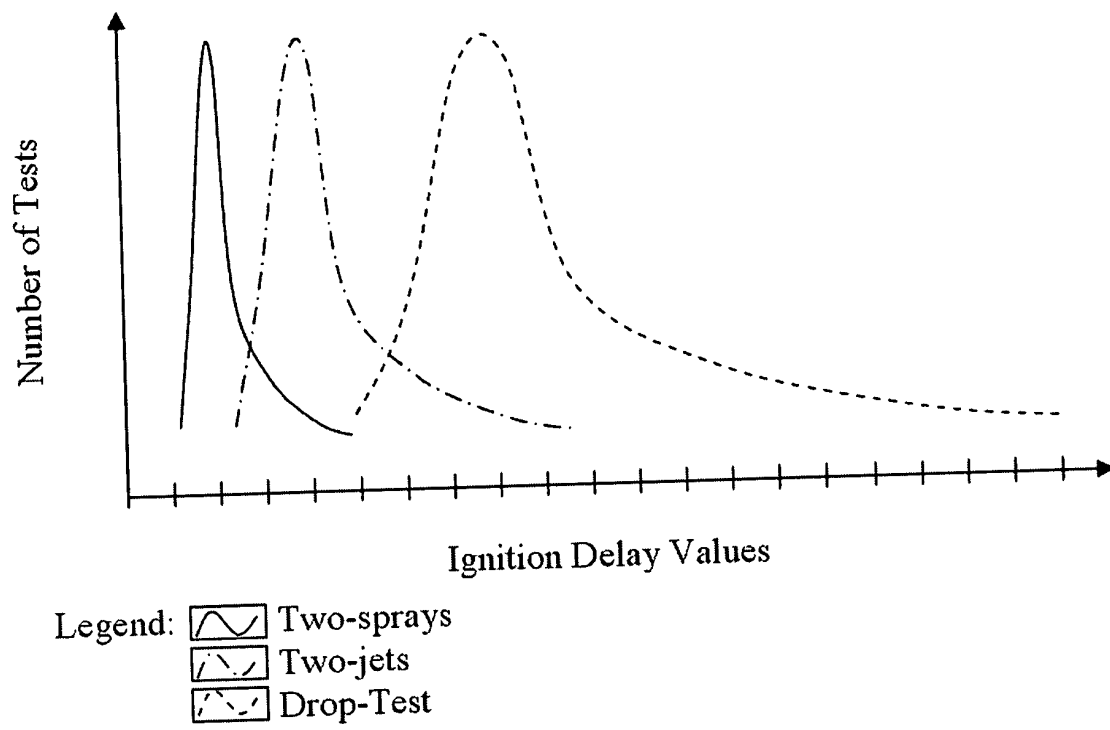


FIG. 10

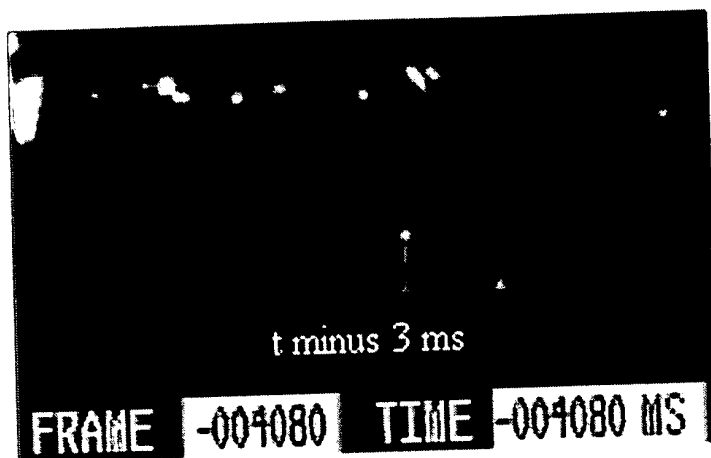


FIG. 11a

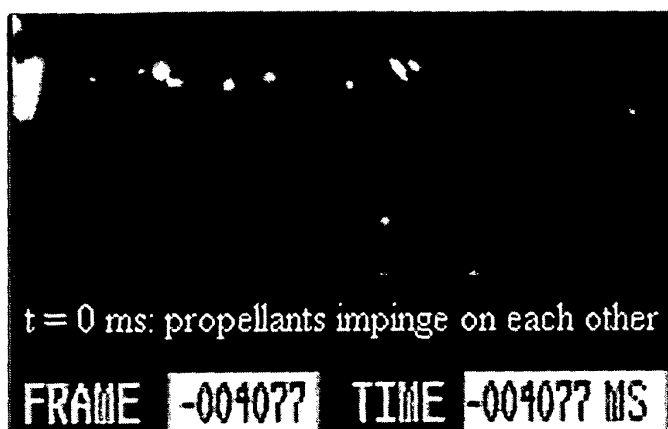


FIG. 11b

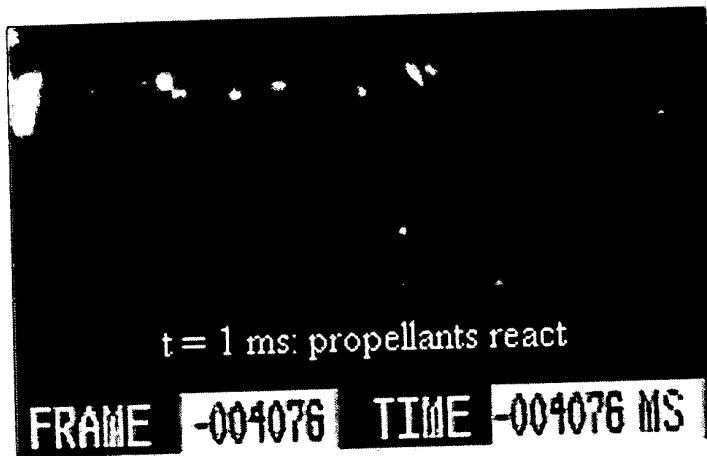


FIG. 11c

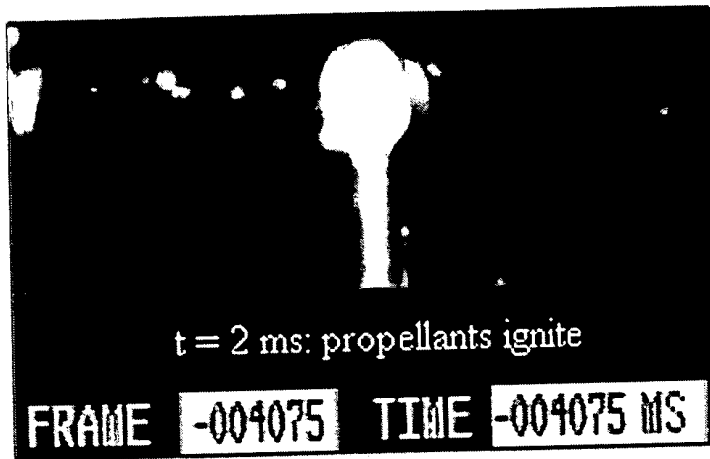
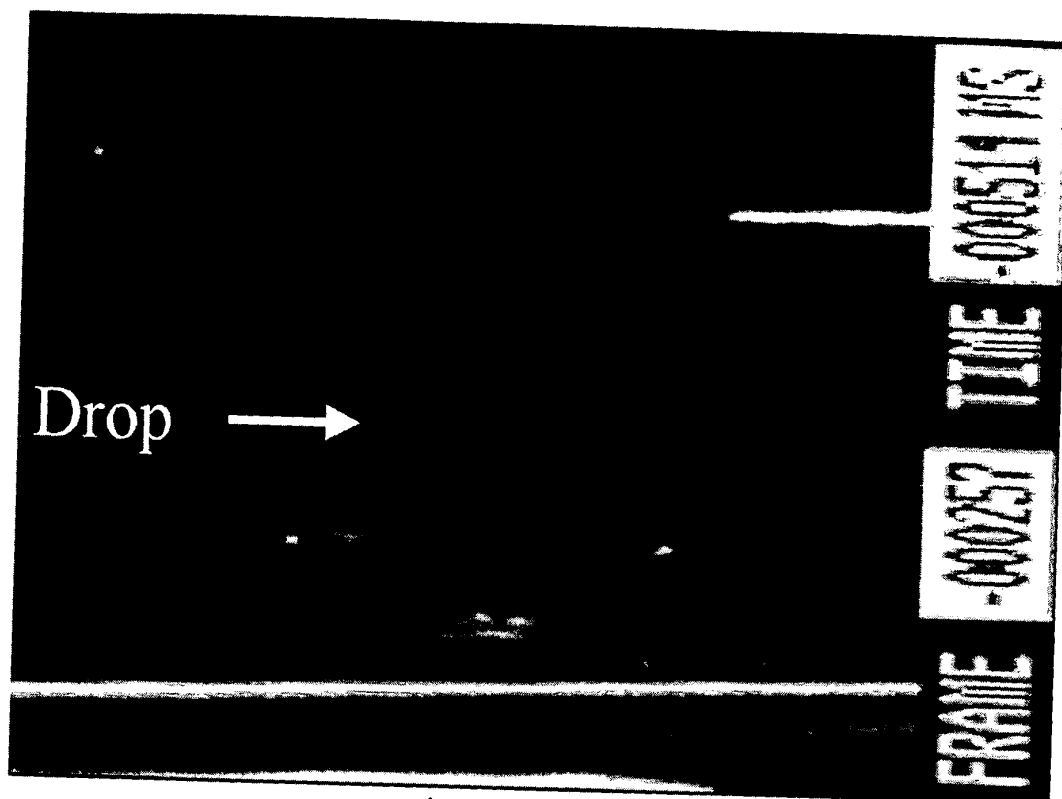
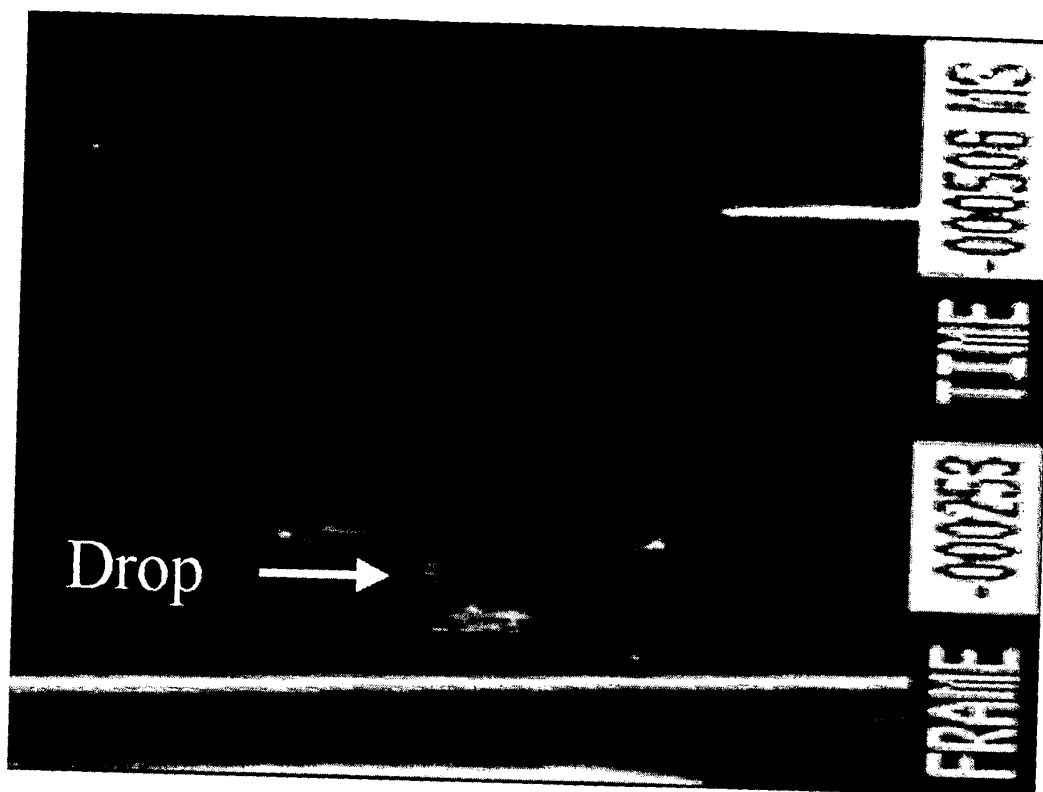


FIG. 11d



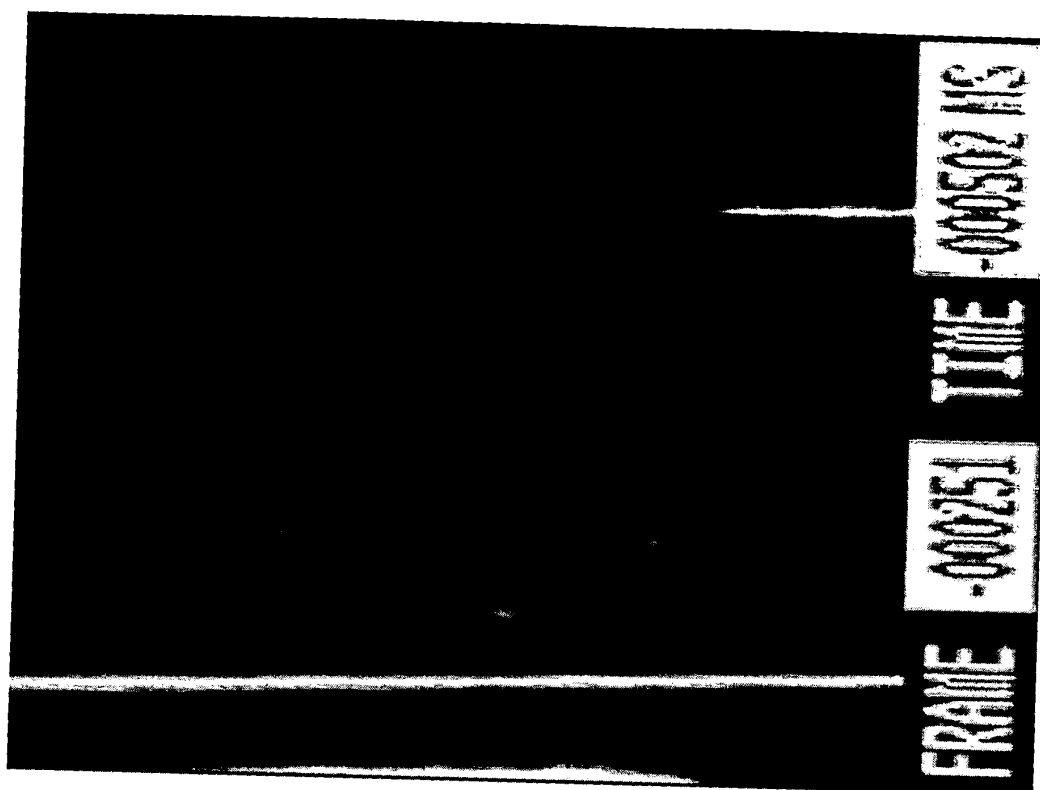
t minus 12 ms

**FIG. 12a**

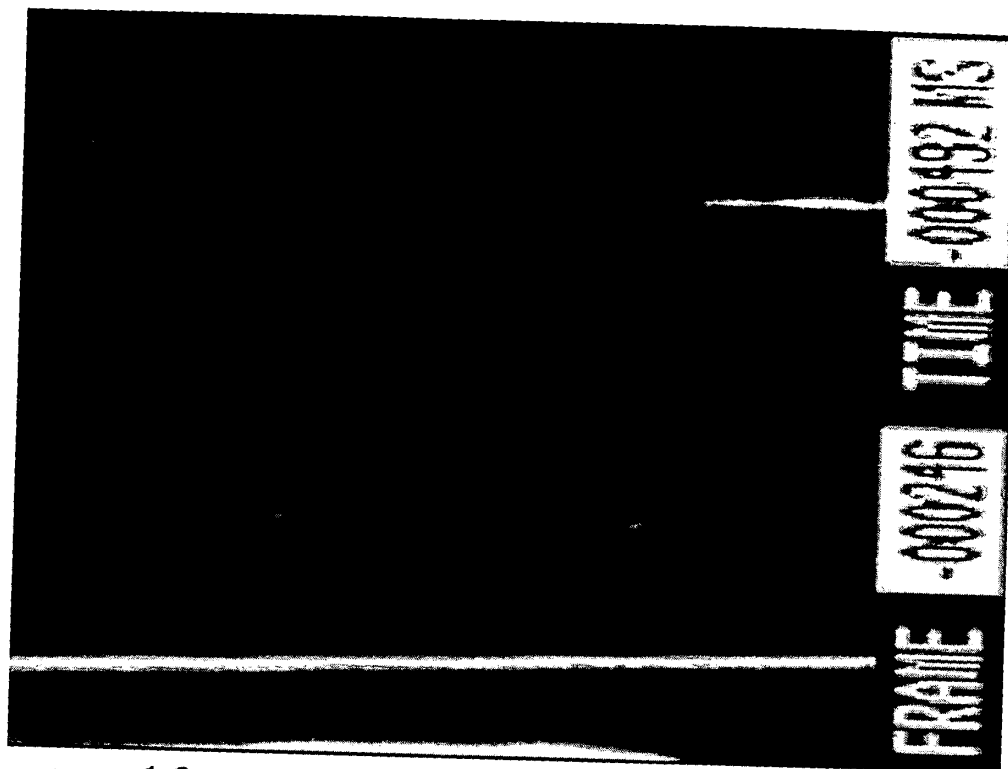


t minus 4 ms  
**FIG. 12b**

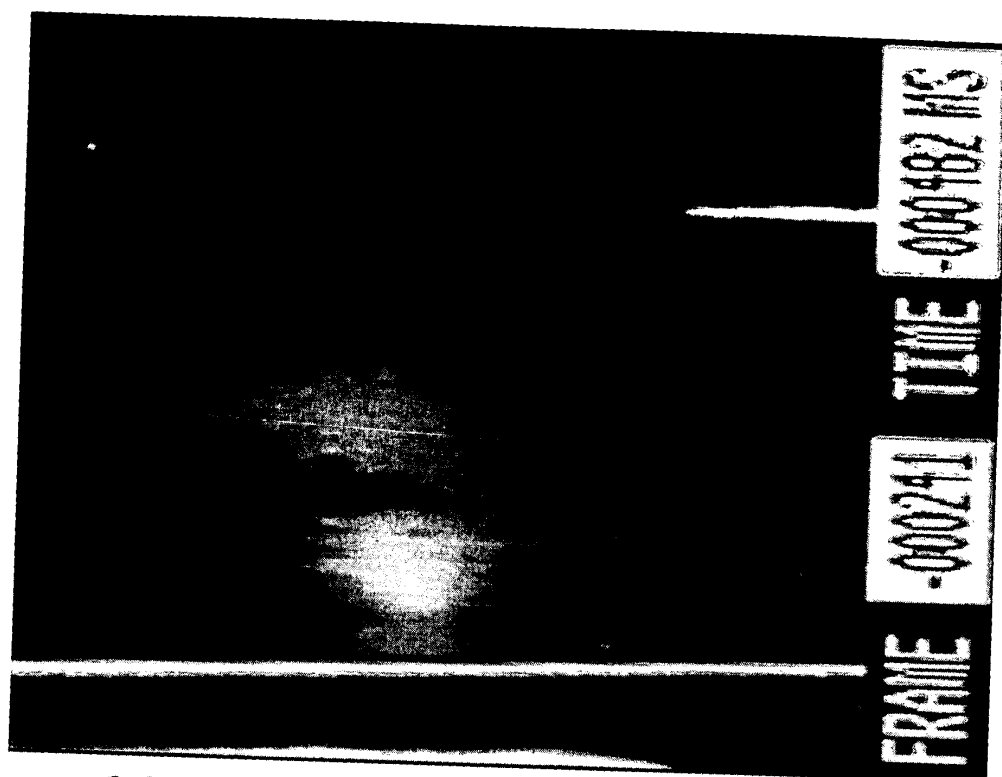




$t = 0$  ms: oxidizer drop hits fuel  
**FIG. 12c**



$t = 10$  ms: propellants start reacting  
**FIG. 12d**



$t = 20$  ms: propellants visibly reacting  
**FIG. 12e**



$t = 24$  ms: propellants ignite  
**FIG. 12f**